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EXAMINER

SHUMATE, ANTHONY R

ART UNIT

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1797

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. The Amendment filed 15 March 2010 has been entered and fully considered.
2. Claims 1, 3-7, 9, 10, 12, 14, 15, 17-20, 22, 23, and 26 are pending, of which claims 1, 12, 14, 15, were amended and claim 26 is new.

Information Disclosure Statement

3. Any foreign language documents submitted by applicant has been considered only to the extent of the short explanation of significance, English abstract or English equivalent, if appropriate.

Claim Objections

4. Claim 3 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

- a. Claim 3 has the phrase, "the support comprises," and claim 1 has the phrase, "catalyst consisting of." Comprises is an open-ended phrase, which is contrary to the close-ended language of "consisting of." Therefore, it is Examiner's position that claim 3 does not exclude additional, unrecited elements, which is not encompassed by claim 1. Therefore, claim 3 fails the infringement test.

5. Claims 12, 14, 15, 17-20, 22, 23 and 26 objected to because of the following informalities: Claims 12 and 26 have the phrase, "the range of 50 ppm about 1000 ppm," which is unclear. It is assumed that the phrase properly written would state, "the range of 50 ppm to about 1000 ppm." Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1, 4-7, 9, 10 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Respectively, the original disclosure does not support the "catalyst consisting of."

It is noted that specification of the PCT/GB2004/002262 (priority document) at page 7 stated "a preferred embodiment of the catalyst of the present invention comprises." Also, it is noted that the PCT/GB2004/002262 (priority document) at claim 1 stated, "A catalyst suitable for use in the hydrogenation of a hydrogenatable organic compound which comprises." The

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PCT/GB2004/002262 (priority document) stated open-ended language, and not the close-ended language at the present instant claim 1.

Additionally, it is noted that the abstract of the GB 0312769.3 (priority document) stated, "A catalyst suitable for use in the hydrogenation of acetylenic compounds in an olefin stream comprises a compound of palladium supported upon a support material with a promoter compound selected from a compound of zinc and a compound of cerium." It is noted that "a compound of zinc" is not recited at the presently pending instant claim 1. The GB 0312769.3 (priority document) stated open-ended language, and not the close-ended language at the present instant claim 1, in addition to "a compound of zinc" which is not presently recited at the present instant claim 1.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 26 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "a level in the range of 50 ppm about 1000 ppm" in claim 26 is a relative term which renders the claim indefinite. The term "a level in the range of 50 ppm about 1000 ppm" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill

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in the art would not be reasonably apprised of the scope of the invention. The palladium is present in the catalyst has been rendered indefinite by the use of the term "a level in the range of 50 ppm about 1000 ppm."

Claim Rejections - 35 USC § 102/103

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 1, 3, 5, 6, 7, 9, 10, 12, 14, 15, 17-20, 22, 23, and 26 rejected under 35 U.S.C. 102(b) as anticipated by ANDERSON et al. (US 2,909,578) ("ANDERSON") or, in the alternative, for arguendo, under 35 U.S.C. 103(a) as obvious over ANDERSON et al. (US 2,909,578) ("ANDERSON") in view of DAI et al. (US 2002/0068843 A1) ("DAI").

For instant claims 1, 3, 6, 7, 9 and 10, ANDERSON states at the title, "Hydrogenation of acetylene" (i.e. hydrogenation of an hydrogenatable organic compound).

Also for instant claims 1, 3, 6, 7, 9 and 10, ANDERSON teaches at column 2 lines 31-39 a catalyst with palladium supported upon alumina.

As well for instant claims 1, 3, 6, 7, 9 and 10, it is the Examiner's position that claim can be interpreted in the broadest reasonable sense to have the recited "compound of a lanthanide," included with the, "the group consisting of." The "compound of a lanthanide," is not distinctly claimed as an additional element of the catalyst.

For arguendo, in the alternative, DAI et al. teaches at the title and paragraph 1 a catalyst for selectively hydrogenating acetylenic compounds. Additionally, DAI et al. teaches at paragraph 30 that one of the preferred rare earth metals is Ce (cerium) (i.e. a lanthanide). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the cerium of DAI with the catalyst of ANDERSON for the benefit of promoter action on the catalyst.

Also for instant claims 1, 3, 6, 7, 9 and 10, ANDERSON states at column 2 lines 5-10, "the palladium metal constituting about 0.00001 to 0.0014 percent of the total catalyst weight," (i.e. palladium is present in the catalyst in the range of about 10 ppm to 1400 ppm by weight of the total catalyst). It is the Examiner's

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position that the range of about 10 ppm to 1400 ppm overlaps “the range of 50 ppm about 1000 ppm.”

In view of this, the claimed invention is anticipated by the reference.

In the alternative, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

As well, the phrase, “a level” in the phrase “a level in the range of 50 ppm about 1000 ppm,” renders the claims unclear as to what is included or excluded by the claim language.

For instant claim 5, ANDERSON states at column 2 lines 31-34, “1/8” activated alumina pellets.” It is the Examiner’s position that 1/8” is 3.175 mm; and 3.175 mm is within the claimed range of a minimum dimension greater than 1 mm.

For instant claims 12, 17, 19, 20, 22, and 23, ANDERSON states at the title, "Hydrogenation of acetylene" (i.e. hydrogenation of an acetylenic compound).

Also for instant claims 12, 17, 19, 20, 22, and 23, ANDERSON teaches at column 2 lines 31-39 passing a mixture of a gaseous feed containing acetylene (i.e acetylenic compound) and hydrogen over a catalyst.

As well for instant claims 12, 17, 19, 20, 22, and 23, it is the Examiner's position that the phrase, "consists essentially of" does not limit the overall scope of the claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention, because the phrase is preceded by "comprising," which is inclusive or open-ended and does not exclude additional, unrecited elements or method steps.

Also for instant claims 12, 17, 19, 20, 22, and 23, ANDERSON teaches at column 2 lines 31-39 a catalyst with palladium supported upon alumina

As well for instant claims 12, 17, 19, 20, 22, and 23, it is the Examiner's position that claim can be interpreted in the broadest reasonable sense to have the recited "compound of a lanthanide," included with the, "the group consisting of." The "compound of a lanthanide," is not distinctly claimed as an additional element of the catalyst.

For arguendo, in the alternative, DAI et al. teaches at the title and paragraph 1 a catalyst for selectively hydrogenating acetylenic

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compounds. Additionally, DAI et al. teaches at paragraph 30 that one of the preferred rare earth metals is Ce (cerium) (i.e. a lanthanide). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the cerium of DAI with the catalyst of ANDERSON for the benefit of promoter action on the catalyst.

Also for instant claims 12, 17, 19, 20, 22, and 23, ANDERSON states at column 2 lines 5-10, "the palladium metal constituting about 0.00001 to 0.0014 percent of the total catalyst weight," (i.e. palladium is present in the catalyst in the range of about 10 ppm to 1400 ppm by weight of the total catalyst). It is the Examiner's position that the range of about 10 ppm to 1400 ppm overlaps "the range of 50 ppm about 1000 ppm."

In view of this, the claimed invention is anticipated by the reference.

In the alternative, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

As well, the phrase, "a level" in the phrase "a level in the range of 50 ppm about 1000 ppm," renders the claims unclear as to what is included or excluded by the claim language.

For instant claim 14, ANDERSON teaches at column 2 lines 31-39 the gaseous feed mixture has 0.5 percent acetylene, 26 percent ethylene, and hydrogen (i.e. wherein said gaseous feed mixture contains a minor proportion of an acetylenic compound and a major proportion of an olefinic compound, in addition to hydrogen).

For instant claim 15, ANDERSON teaches at column 2 lines 31-39 the gaseous feed mixture has 0.5 percent acetylene, 26 percent ethylene, and hydrogen (i.e. wherein said gaseous feed mixture contains a minor proportion of acetylene and a major proportion of ethylene, in addition to hydrogen).

For instant claim 18, ANDERSON states at column 2 lines 31-34, "1/8" activated alumina pellets." It is the Examiner's position that 1/8" is 3.175 mm; and 3.175 mm is within the claimed range of a minimum dimension greater than 1 mm.

For instant claim 26, ANDERSON states at the title, "Hydrogenation of acetylene" (i.e. hydrogenation of an acetylenic compound).

Also for instant claim 26, ANDERSON teaches at column 2 lines 31-39 passing a mixture of a gaseous feed containing acetylene (i.e acetylenic compound) and hydrogen over a catalyst.

As well for instant claim 26, it is the Examiner's position that the phrase, "consists of" does not limit the overall scope of the claim to exclude any element, step, or ingredient not specified in the claim, because the phrase is preceded by the phrase "comprising," which is inclusive or open-ended and does not exclude additional, unrecited elements or method steps. (See MPEP 2111.03)

Also for instant claim 26, ANDERSON teaches at column 2 lines 31-39 a catalyst with palladium supported upon alumina

As well for instant claim 26, it is the Examiner's position that claim can be interpreted in the broadest reasonable sense to have the recited "compound of a lanthanide," included with the, "the group consisting of." The "compound of a lanthanide," is not distinctly claimed as an additional element of the catalyst.

For arguendo, in the alternative, DAI et al. teaches at the title and paragraph 1 a catalyst for selectively hydrogenating acetylenic compounds. Additionally, DAI et al. teaches at paragraph 30 that one of the preferred rare earth metals is Ce (cerium) (i.e. a lanthanide). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to provide the cerium of DAI with the catalyst of ANDERSON for the benefit of promoter action on the catalyst.

Also for instant claim 26, ANDERSON states at column 2 lines 5-10, "the palladium metal constituting about 0.00001 to 0.0014 percent of the total catalyst weight," (i.e. palladium is present in the catalyst in the range of about 10 ppm to 1400 ppm by weight of the total catalyst). It is the Examiner's position that the range of about 10 ppm to 1400 ppm overlaps "the range of 50 ppm about 1000 ppm."

In view of this, the claimed invention is anticipated by the reference. In the alternative, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

As well, the phrase, "a level" in the phrase "a level in the range of 50 ppm about 1000 ppm," renders the claims unclear as to what is included or excluded by the claim language.

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13. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over ANDERSON et al. (US 2,909,578) ("ANDERSON") or, in the alternative, for arguendo, ANDERSON et al. (US 2,909,578) ("ANDERSON") in view of DAI et al. (US 2002/0068843 A1) ("DAI") as applied to claims 1, 3, 5, 6, 7, 9, 10, 12, 14, 15, 17-20, 22, 23, and 26 above, and further in view of WRIGHT et al. (US 3,549,720) ("WRIGHT").

For instant claim 4, ANDERSON states at the title, "Hydrogenation of acetylene" (i.e. hydrogenation of an hydrogenatable organic compound). Also, ANDERSON teaches at column 2 lines 31-39 a catalyst with palladium supported upon alumina.

But, ANDERSON does not specifically teach the mean pore diameter lies within the range of 0.05 - 1 micron.

But, WRIGHT teaches at abstract a catalyst with palladium and alumina. Also, WRIGHT teaches at abstract that the catalyst for hydrogenation of acetylenes in a gas stream containing olefins. Furthermore, WRIGHT teaches at column 2 lines 15-35, that the taught catalysts' majority quantity of pore diameter is smaller than 800 angstroms (0.08 microns which overlaps the claimed range of wherein the mean pore diameter lies within the range 0.05-1 micron). This provides a prima facie case of obviousness.

For instant claim 4, WRIGHT also states at column 1 line 60 – 70 and column 2 lines 15-22, "Large quantities of alumina are used as supports for noble metal hydrogenation catalysts, particularly as supports for palladium catalysts.

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However, it is now recognized that physical properties of the various aluminas, such as surface area, pore size or pore size distribution and the like, should fall within narrow ranges for various reactions. For example, when selectively treating a particular size range molecule it is often advantageous to have a particular alumina pore size.”

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the pore diameter technique taught by WRIGHT with majority quantity of pore diameter is smaller than 800 angstroms (0.08 microns) the catalyst of ANDERSON, since pore diameter has been shown to be advantageous for selectivity as taught by WRIGHT at column 1 line 60 – 70 and column 2 lines 15-22.

Response to Arguments

14. Applicant's arguments filed 15 March 2010 have been fully considered but they are not persuasive.

15. Applicant argues at page 5 first paragraph – fourth paragraph that the amendments to the claims overcomes the rejection(s). In response, the Applicant is invited to review the above action which addresses the amendments.

16. Applicant argues at page 5 last paragraph – page 6 second paragraph that, “Claim 1 has been amended to include the feature of claim 24, namely, the palladium is

present at a level in the range of about 50 ppm to about 1000 ppm by weight calculated as Pd metal and the weight of the total catalyst. Claim 24 was not rejected with respect to Yamaguchi; the Examiner has correctly concluded that Yamaguchi fails to disclose the catalyst previously claimed by claim 24, which is now the subject matter claimed by amended claim 1. Accordingly, the applicants request withdrawal of the anticipation and obviousness rejections based on Yamaguchi of claims 1, 3-7, 9, and 10."

- a. Respectively, the Examiner does not find this persuasive. The Examiner has not stated that, "Yamaguchi fails to disclose the catalyst previously claimed by claim 24." Also, the Examiner has not stated that, "Yamaguchi fails to disclose the catalyst previously claimed by claim 25."

17. Applicant's arguments, see page 6 third paragraph – page 7 first paragraph, filed 15 March 2010 directed towards the amendments and the previous rejection(s) have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment.

- a. Also, in response, the Applicant is invited to review the above action which addresses the amendments.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY SHUMATE whose telephone number is (571)270-5546. The examiner can normally be reached on M-Th 9-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on (571)272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/A. S./
Examiner, Art Unit 1797

/Jason M. Greene/
Primary Examiner, Art Unit 1797